

**A SYSTEM AND METHOD FOR OPTIMIZING TEMPERATURE OPERATING RANGES FOR A THERMAL INKJET PRINthead****ABSTRACT OF THE DISCLOSURE**

5        The present invention is embodied in a system and method for optimizing the temperature operating range for a thermal inkjet printhead using pigmented ink over large print swaths. The printhead assembly includes connection and processing circuitry, a printhead body, ink channels, a substrate, such as a semiconductor wafer (commonly referred to as a die),  
10      a nozzle member and a barrier layer located between the wafer and nozzle member. The nozzle member has heating elements in arrays, as well as plural nozzles coupled to respective ink channels and is secured at a predefined location to the printhead body with a suitable adhesive layer. The printhead also includes a controller, which can be an integrated circuit processor, a printer driver, firmware or the like for controlling an increase in the mean temperature of the die through a feedback loop. The loop activates the heating elements and therefore increases the baseline temperature of the die before printing, and in turn decreases the temperature differential between the baseline temperature and the mean temperature of the die.

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